City of Sunnyvale

Ten Year Project Costs

by Project Category and Type

Project Number	Project Name	Prior Years Actual	Revised Budget 2005-06	Plan 2006-07	Plan 2007-08	Plan 2008-09	Plan 2009-10	Plan 2010-11	Plan 2011-12	Plan 2012-13	Plan 2013-14	Plan 2014-15	Plan 2015-16	Ten Year Plan Total	**Project Grand Total**
Category:	**Infrastructure**														
Type:	**Sanitary Sewer**														
801100	WPCP Air Conditioning Project														
		5,671	344,329	575,000	0	0	0	0	0	0	0	0	0	575,000	925,000
805252	Sewer Pipes, Manholes, and Laterals Replacement														
		1,324	38,000	38,000	38,760	39,535	40,326	41,132	41,955	42,794	43,650	44,523	45,414	416,089	455,413
820821	Chlorinating/Dechlorinating Equipment Replacement														
		572,148	301,852	0	0	0	0	0	0	0	0	0	0	0	874,000
820931	WPCP Pond Pump Pier Repairs														
		15,237	84,763	0	0	0	0	0	0	0	0	0	0	0	100,000
821071	WPCP Replace Public Address System														
		132,704	139,030	0	0	0	0	0	0	0	0	0	0	0	271,734
822781	Borregas Sanitary Trunk Sewer Replacement														
		3,785,683	624,567	0	0	0	0	0	0	0	0	0	0	0	4,410,250
822791	Rehabilitation of Manholes - Lawrence Trunk Sewer														
		20,091	829,185	0	0	0	0	0	0	0	0	0	0	0	849,276
824300	Rehabilitation of Digesters and Replacement of Digester Lids														
		306,486	1,280,865	1,610,000	2,091,000	1,966,356	1,963,235	0	0	0	0	0	0	7,630,591	9,217,942
824770	Primary Sedimentation Basin Renovation - Phase I														
		0	0	0	918,000	1,040,400	2,122,416	1,623,648	1,656,121	1,689,244	1,723,029	0	0	10,772,858	10,772,858
825110	Tertiary Plant Tank Drainage System Modifications - Phase I														
		0	350,000	0	0	0	0	0	0	0	0	0	0	0	350,000
825140	Air Floatation Tank Rehabilitation														
		0	0	0	230,969	1,335,000	0	0	839,101	810,837	0	0	0	3,215,907	3,215,907

Note: Projects with $0 Grand Total have budgets in the second ten years of the Twenty Year Plan.

City of Sunnyvale

Ten Year Project Costs

by Project Category and Type

Project Number	Project Name	Prior Years Actual	Revised Budget 2005-06	Plan 2006-07	Plan 2007-08	Plan 2008-09	Plan 2009-10	Plan 2010-11	Plan 2011-12	Plan 2012-13	Plan 2013-14	Plan 2014-15	Plan 2015-16	Ten Year Plan Total	**Project Grand Total**
825170	Fixed Growth Reactor Rehabilitation														
		0	0	0	0	0	0	0	0	0	0	358,528	2,123,381	2,481,909	2,481,909
825320	Replacement/Rehabilitation of Sanitary Manholes														
		0	75,000	75,000	76,500	78,030	79,591	81,182	82,806	84,462	86,151	87,874	89,632	821,228	896,228
825330	Replacement/Rehabilitation of Sewer Pipes														
		0	70,000	102,000	208,000	318,362	432,973	552,040	563,081	574,343	585,830	597,546	615,473	4,549,648	4,619,648
825520	Pond Sediment Removal														
		0	300,000	651,000	664,020	677,300	690,846	704,663	718,757	733,132	747,794	762,750	778,005	7,128,267	7,428,267
825750	Sewer Lift Stations Rebuild														
		0	0	0	0	0	0	49,684	337,849	327,375	216,757	101,583	0	1,033,248	1,033,248
826080	Borregas Avenue Sewer Rehabilitation														
		0	1,050,000	0	0	0	0	0	0	0	0	0	0	0	1,050,000
Total		4,839,344	5,487,591	3,051,000	4,227,249	5,454,983	5,329,387	3,052,349	4,239,670	4,262,187	3,403,211	1,952,804	3,651,905	38,624,745	48,951,680

Note: Projects with $0 Grand Total have budgets in the second ten years of the Twenty Year Plan.

Project Information Sheet

Project: 801100 WPCP Air Conditioning Project

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	1995-96	Phase:	Design	Project Manager:	Hira Raina
Planned Completion Year:	2003-04	% Complete:	0	Project Coordinator:	Hira Raina
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

This project provides replacement air conditioning for two separate buildings.

The Water Pollution Control Plant (WPCP) Primary Building was the original building at the Plant. It has subsequently gone through many changes and upgrades, resulting in 5 different Heating, Ventilating and Air conditioning (HVAC) units. The Primary Building houses large industrial equipment, such as pumps and motors, which generate excessive heat. The maintenance and repair of these units is increasingly expensive. The Primary building HVAC system is likely to need complete replacement.

The project will also replace the HVAC in the lab building. The existing lab HVAC has been modified several times due to extensive remodeling, and it is inadequate to meet the current lab layout and operations. The air exchange rate is in need of improvement, and the boiler and drain lines are in need of replacement. The air exchange requirements in a laboratory are more demanding due to the chemicals used, and this means that the HVAC system must meet a higher demand than conventional office space. This results in higher than normal costs for HVAC replacement.

Service Level

Reliability of equipment has direct influence on service levels and costs relating to repairs and downtime.

Issues

See RTC # 04-341, Budget Mod #6

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	5,671	344,329	575,000	0	0	0	0	0	0	0	0	0	575,000	925,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	575,000	0	0	0	0	0	0	0	0	0	575,000	
Total	5,671	344,329	575,000	0	0	0	0	0	0	0	0	0	575,000	925,000
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 805252 Sewer Pipes, Manholes, and Laterals Replacement

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	1999-00	Phase:	Ongoing	Project Manager:	Hira Raina
Planned Completion Year:	Ongoing	% Complete:	n/a	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3B	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

This project funds miscellaneous small sanitary sewer projects that may arise during the fiscal year. This is primarily for emergency or incidental situations. Typical work that might be completed include: repairs to 4 or 5 manholes, 250 feet of sewer, or repairs to 10 to 12 sewer laterals in the right-of-way that have failed.

This project is differentiated from separate manhole and main replacement projects by its intent to respond to "emergency" needs that may come up during a year, whereas the replacement projects will be planned, designed, and involve sizeable contracts. This project will deal with small, unanticipated problems that require a quick response on a relatively small scale.

Service Level

no service level effect

Issues

See project 805251 for prior year expenditure history.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	1,324	38,000	38,000	38,760	39,535	40,326	41,132	41,955	42,794	43,650	44,523	45,414	416,089	455,413
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	38,000	38,760	39,535	40,326	41,132	41,955	42,794	43,650	44,523	45,414	416,089	
Total	1,324	38,000	38,000	38,760	39,535	40,326	41,132	41,955	42,794	43,650	44,523	45,414	416,089	455,413
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 820821 Chlorinating/Dechlorinating Equipment Replacement

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	1999-00	Phase:	Construction	Project Manager:	Hira Raina
Planned Completion Year:	2003-04	% Complete:	25	Project Coordinator:	John Addeo
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

Replacement of obsolete chlorination and dechlorination equipment and control systems is required to safely, efficiently and reliably meet both National Pollution Discharge Elimination System (NPDES) discharge requirements and recycled water production. Existing chlorinators were installed in 1985 and are unsupportable by manufacturer and well past their useful life. Construction contract for this project has been awarded.

NPDES Discharge Permit number Order no. R2-2003-0079, NPDES Permit No. CA0037621, Adopted 8/20/03.
Water production requirements are included under Title 22 State Requirements.

Service Level

no service level effect

Issues

See RTC # 04-341, Budget Modification #6 for FY 04-05, budget totals $874,000.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	572,148	301,852	0	0	0	0	0	0	0	0	0	0	0	874,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	572,148	301,852	0	0	0	0	0	0	0	0	0	0	0	874,000
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 820931 WPCP Pond Pump Pier Repairs

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	1999-00	Phase:	Planning	Project Manager:	Lorrie Gervin
Planned Completion Year:	2003-04	% Complete:	50	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The piers supporting the secondary pond pump have dry rot and need extensive repairs. During the construction completed in FY 02/03, the damage exposed was much more extensive than reports indicated. All funds were utilized to replace the area where the pumps reside; approximately 50% of the pier was replaced. It is now necessary to complete the repairs to the remaining portion where the motor control center (mcc) resides. This project will install temporary power to the pumps and includes the removal of the mcc, replacement of wood structure, and re-installation of mcc and necessary electrical work. Completion of this project is anticipated to extend the life for approximately 25 years.

Service Level

Failure of this pier would result in the inability to provide tertiary treatment to our wastewater treatment plant.

Issues

See RTC # 04-341, Budget Modification #6.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	15,237	84,763	0	0	0	0	0	0	0	0	0	0	0	100,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	15,237	84,763	0	0	0	0	0	0	0	0	0	0	0	100,000
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 821071 WPCP Replace Public Address System

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	1999-00	Phase:	Construction	Project Manager:	John Addeo
Planned Completion Year:	2003-04	% Complete:	n/a	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3F	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The current public address system is failing and in need of replacement. The corrosive atmosphere at the Water Pollution Control Plant (WPCP) limits useful life.

Required by Title 22 Emergency Response Contingency Plan and Title 19 - Risk Management Plan under CalARP, and also part of the Hazardous Materials Business plan - under 40 CFR part 112.5.

Service Level

WPCP employees must be notified immediately of hazardous materials leaks and spills or plant evacuations. This program will improve safety notifications and allow personnel to perform their tasks more safely.

Issues

Project has begun but was delayed due to infrastructure needing replacement.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	132,704	139,030	0	0	0	0	0	0	0	0	0	0	0	271,734
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	0	0	0	0	0	0	0	0	0	0	
Total	132,704	139,030	0	0	0	0	0	0	0	0	0	0	0	271,734
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 822781 Borregas Sanitary Trunk Sewer Replacement

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2001-02	Phase:	Construction	Project Manager:	Hira Raina
Planned Completion Year:	2004-05	% Complete:	25	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3B	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The existing concrete Borregas Avenue Trunk Sanitary Sewer pipe and manholes are actively corroded in areas. A replacement 42-inch sewer along a revised alignment will provide capacity for present and future flows. The replacement sewer will be constructed of materials not subject to corrosion. The contract for construction of this project was awarded on 9/28/04.

Service Level

no service level effect

Issues

This is a bond-funded project. See project 822780 for prior year expenditure history.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	3,785,683	624,567	0	0	0	0	0	0	0	0	0	0	0	4,410,250
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	0	0	0	0	0	0	0	0	0	0	
Total	3,785,683	624,567	0	0	0	0	0	0	0	0	0	0	0	4,410,250
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 822791 Rehabilitation of Manholes - Lawrence Trunk Sewer

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2001-02	Phase:	Design	Project Manager:	Hira Raina
Planned Completion Year:	2004-05	% Complete:	30	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3B	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The Lawrence Trunk Sewer is one of 5 major sewer trunk lines in the City. Approximately 60 sanitary sewer manholes have suffered significant deterioration and require rehabilitation. Toxic gases that are naturally produced in sanitary sewer systems are corrosive to concrete. Current standards require epoxy, or some other coating, to protect the concrete from this type of corrosion. The Lawrence line is more than 50 years old and carries a large flow from a large collection area. The longer the flow is in the pipes, the stronger the gases become and the more corrosive their effects.

This project will provide all work necessary to rehabilitate the existing manholes. The interiors will be coated with a material to replace the lost concrete for structural strength and provide a protective coat that will slow or prevent the reoccurrence of corrosion. Loose steel ladder rungs, no longer used to enter manholes, will be removed, joints to connecting pipes will be repaired, and damaged lids will be replaced as necessary.

The project cost is approximately $14,000 per manhole. Normally manhole rehabilitation is about half this amount. In this instance, the manholes are more severely corroded than might be expected on a normal, residential sewer line. Also, a more expensive material will be used to provide a longer life for the manhole surfaces and avoid future corrosion. The location of the line along Lawrence Expressway adds to the cost of the work due to working in the County jurisdiction and the requirements for significant traffic control, possibly including working at night or on weekends.

Service Level

no service level effect

Issues

none

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	20,091	829,185	0	0	0	0	0	0	0	0	0	0	0	849,276
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	0	0	0	0	0	0	0	0	0	0	
Total	20,091	829,185	0	0	0	0	0	0	0	0	0	0	0	849,276
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 824300 Rehabilitation of Digesters and Replacement of Digester Lids

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2002-03	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	2010-11	% Complete:	95	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3c	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

Digesters at the Water Pollution Control Plant (WPCP) are used to further degrade solid waste removed from the wastewater. The structural integrity of the digesters /lids must be maintained to prevent releases of potentially hazardous methane that could result in Bay Area Air Quality Management District (BAAQMD) violations.

Digesters #1 and 2 were built in 1955, #3 in 1961, and #4 in 1969.The digester lids have deteriorated, and methane gas has been found between the structural layers of the lids. Spot repairs have been completed and have provided some addition to the useful life, but are no longer adequate to fix the problem. To prevent failure, the lids need to be replaced. WPCP staff have identified digesters as a top concern and priority for infrastructure rehabilitation.

This project will provide funds for the design and construction of four replacement anaerobic digester covers and peripheral equipment. Engineering studies and structural inspection have confirmed that replacement is more cost-effective than repair. Replacement is estimated to extend the life of the digesters another 30 years. Digester # 3 will be rehabilitated first, followed by # 4, based on inspection and the level of deterioration of each. The construction budget is based on the recent engineering investigation. Funds provide for design in FY04-05. FY 05-06 funds are for initiation of construction on the first digester. Funds in the subsequent years cover the completion of one digester and initiation of the next. Construction costs are estimated at $1,750,000 per digester. Engineering services are the highest for design on the first digester and decline with each of the following digesters since the plans and specs will need to be modified slightly for each one but not completely redone.

Service Level

No service level affected unless failure occurs. This project is infrastructure maintenance.

Issues

See RTC 04-341, Budget Modification #6 - Project combined with $300,000 from 824760 for a total budget of $722,550 in FY 04-05 for initial project design only.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	306,486	1,280,865	1,610,000	2,091,000	1,966,356	1,963,235	0	0	0	0	0	0	7,630,591	9,217,942
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	1,610,000	2,091,000	1,966,356	1,963,235	0	0	0	0	0	0	7,630,591	
Total	306,486	1,280,865	1,610,000	2,091,000	1,966,356	1,963,235	0	0	0	0	0	0	7,630,591	9,217,942
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 824770 Primary Sedimentation Basin Renovation - Phase I

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2004-05	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	Ongoing	% Complete:	n/a	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

Water Pollution Control Plant (WPCP) primary treatment provides the removal of solids and floating material from the wastewater stream. The ten primary sedimentation basins are reinforced concrete structures with process piping, mechanical drives and motors, and associated instrumentation. The oldest of the primary tanks were part of the original plant built in 1955. The concrete in these tanks are falling off in large chunks, and exposing the reinforced steel inside the structures. Once the reinforced steel is exposed to the atmosphere, it corrodes at a fairly rapid rate, and this then begins to threaten the structural integrity of the basin.

The primary tanks were built before the current, more stringent seismic requirements were put in place, so some seismic retrofit will likely be required. In addition, the mechanical components of the primary tanks that remove the solids from the tanks have reached the end of their useful life. This project will provide engineering review, seismic evaluation, and the development of plans and specifications for repair or replacement and construction of the recommended option. FY 05-06 and 06-07 funding is for the engineering design and review. These fees are estimated at a higher than normal percentage of the total project costs because design of repair/rehab/replacement work has proven to be more costly than design of new installations. FY 07-08 funding will cover the cost of construction for the first two basins as well as some follow-up engineering services to incorporate findings from the first construction project. Construction for 2 additional basins is budgeted for each of the following four years.

Replacement is needed to restore structural integrity to the basins and to provide for effective treatment and prevent solids from passing on through to the secondary ponds. Should this occur, removal is very expensive, and excessive solids loading would contribute to significant odor production.

Service Level

This project maintain compliance with discharge regulations during future operation of the treatment plant.

Issues

The study (Phase I) will determine the budget for construction (Phase II.)

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	0	0	918,000	1,040,400	2,122,416	1,623,648	1,656,121	1,689,244	1,723,029	0	0	10,772,858	10,772,858
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	918,000	1,040,400	2,122,416	1,623,648	1,656,121	1,689,244	1,723,029	0	0	10,772,858	
Total	0	0	0	918,000	1,040,400	2,122,416	1,623,648	1,656,121	1,689,244	1,723,029	0	0	10,772,858	10,772,858
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825110 Tertiary Plant Tank Drainage System Modifications - Phase I

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2003-04	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	2005-06	% Complete:	0	Project Coordinator:	John Addeo
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The tertiary plant tank drainage system at the Water Pollution Control Plant (WPCP) is used to drain chlorine contact tanks, fixed growth reactor tanks and air floatation tanks should any of these tanks need to be shut down for maintenance. The original drainage structure and pump station were built in 1975. The rate of drainage has noticeably slowed during the last couple of years, and it appears that some of the drainage piping has collapsed. The inability to drain these tanks quickly and efficiently for repairs compromises the City's ability to meet all NPDES discharge requirements because tanks would be unavailable to provide treatment. In addition, since the production of recycled water has become a regular component of operations, the inability to quickly accomplish repairs also compromises the reliability of recycled water deliveries.

Phase I encompasses both a study and the subsequent engineering design work. The study portion would evaluate and make recommendations for repair, replacement or modifications to the existing collection/drainage system and pump station. The engineering work would include development of plans and bid specifications, including preparing a detailed cost estimate.

Phase II will be for the actual construction and will be submitted in a subsequent project cycle for construction funding. The scope and estimated costs for Phase II will be generated as a work product of this Phase I project.

Service Level

Program 342 - Wastewater Management requires treated sewage to meet regulatory standards and to protect the public health and environment.

Issues

Failure to be able to drain tanks for repair may result in process units being unavailable to meet recycled water needs or to meet Bay discharge requirements.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	350,000	0	0	0	0	0	0	0	0	0	0	0	350,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Total	0	350,000	0	0	0	0	0	0	0	0	0	0	0	350,000
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825140 Air Floatation Tank Rehabilitation

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2003-04	Phase:	Ongoing	Project Manager:	Hira Raina
Planned Completion Year:	2009-10	% Complete:	n/a	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3c	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

This project provides funds to rehabilitate and provide corrosion protection for 4 Air Floatation Tanks at the Water Pollution Control Plant (WPCP) which are steel and concrete structures. Air floatation tanks are used to remove the algae that grows during secondary treatment in the oxidation ponds. Three of these structures were built in 1975 and the 4th one in 1982, and all are in need of significant rehabilitation. The maintenance on these structures is critical to maintain process and regulatory compliance. This project will allow staff to take each of the tanks out of service, one at a time, and perform the needed preventive maintenance. This project includes repair/replacement of the steel and mechanical portion of this structure, repair and/or replacement of the influent gates and coating of the concrete walls, extending their useful life for approximately 20 years. Cost estimates were based on an internal estimate and include $670,000 for construction for each tank. Declining amounts for each subsequent year for engineering services reflect knowledge gained as repairs proceed.

Service Level

Major maintenance will be needed to maintain current levels of service.

Issues

Currently, the influent gates do not perform adequately, compromising staff's ability to isolate tanks. Without the ability to isolate individual tanks, additional tanks must be taken out of service when any one tank needs repair. This compromises the WPCP's ability to maintain treatment and discharge of effluent and to produce recycled water.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	0	0	230,969	1,335,000	0	0	839,101	810,837	0	0	0	3,215,907	3,215,907
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	230,969	1,335,000	0	0	839,101	810,837	0	0	0	3,215,907	
Total	0	0	0	230,969	1,335,000	0	0	839,101	810,837	0	0	0	3,215,907	3,215,907
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825170 Fixed Growth Reactor Rehabilitation

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2003-04	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	2005-06	% Complete:	n/a	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3c	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The fixed growth reactors at the Water Pollution Control Plant (WPCP) provide for the biological removal of ammonia from the wastewater stream. Ammonia is toxic to fish and other aquatic life, making removal important prior to discharge. These structures have been in service for 27 years and are showing various signs of wear and deterioration that need to be addressed. This project will provide funds to renovate three fixed growth reactors. The project is scheduled to begin in FY 2015/2016 and will be completed in FY 2017/18. The total cost is estimated at $6.5 million.

Inspections have shown the structures themselves appear to be in relatively good condition. However, the towers have settled and need to be re-leveled to protect bearings and seals and to insure that the flow pattern through the units does not compromise treatment. Additionally, the media within the towers over which wastewater flows need replacement as it has deteriorated, creating areas where the wastewater ponds instead of flowing, also compromising treatment.

When these structures are taken out of service for this maintenance, a thorough evaluation of the structures and piping will be accomplished; and any deficiencies will be identified and corrected. The completion of this maintenance is expected to extend the life of the reactors another 20-25 years.

Service Level

All fixed growth reactors are needed during the summer months to reduce ammonia levels to allowable permit limits. There are no stand-by units for this process.

Issues

No issues.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	0	0	0	0	0	0	0	0	0	358,528	2,123,381	2,481,909	2,481,909
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	0	0	0	0	0	0	0	358,528	2,123,381	2,481,909	
Total	0	0	0	0	0	0	0	0	0	0	358,528	2,123,381	2,481,909	2,481,909
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825320 Replacement/Rehabilitation of Sanitary Manholes

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2005-06	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	Ongoing	% Complete:	n/a	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3B.1	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The sewer system infrastructure is on average 50 years old, with some parts considerably older. The system includes over 5,700 sewer manholes. This project provides funding to replace or rehabilitate manholes, depending on condition, at a rate of about 10 manholes/yr at an estimated cost of $7,500 per manhole.

Recent evaluation of 74 manholes on Lawrence Expressway and Arques Avenue has indicated a general structural deterioration of the concrete manholes to the point where rehabilitation must be done to prevent collapse. It is reasonable to infer that other manholes in the City's system are also in poor condition since no ongoing program to inspect and repair has ever been conducted. This project would systematically repair or replace deficient manholes. Deteriorated manholes will be identified during flushing and video inspection operations. This project may need to be considered for expansion in the future, depending upon what is identified in the early years. The project is expected to be ongoing into the foreseeable future. Work will have to be coordinated with any planned street improvements as the program moves forward.

Service Level

The project will preserve the City's investment in its infrastructure, and prevent problems that would be inconvenient, costly, and unsanitary.

Issues

none

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	75,000	75,000	76,500	78,030	79,591	81,182	82,806	84,462	86,151	87,874	89,632	821,228	896,228
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	75,000	76,500	78,030	79,591	81,182	82,806	84,462	86,151	87,874	89,632	821,228	
Total	0	75,000	75,000	76,500	78,030	79,591	81,182	82,806	84,462	86,151	87,874	89,632	821,228	896,228
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825330 Replacement/Rehabilitation of Sewer Pipes

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2005-06	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	Ongoing	% Complete:	n/a	Project Coordinator:	Jim Craig
Origin:	Board/Commission			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3B.1	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The City has over 280 miles of sewer lines, in sizes from 6 inches to 36 inches in diameter. The value of these sewers is estimated to be in excess of $200 million. Many of these lines are 50 years old, or older. Failures have been occurring, and deficiencies have been noted in several locations. This project will replace or rehabilitate sewer mains as they are identified as in need of replacement. Alternative technologies will be investigated as to the best application in each location. The City has used several methods in the past to replace deteriorated sewer lines, including full replacement, lining, and "bursting" and replacing.

The project listed includes replacement or rehabilitation of approximately 3,000 feet per year at a rounded cost of $150 per foot. In addition, an amount of $70,000 is included in each year for engineering design work for the replacement/rehabilitation to be completed the following year. For 2005-06 only the $70,000 engineering cost is listed. Following that, the estimate is $520,000 per year (approximately one-quarter of one percent [0.25%] of the value of the entire collection system).

This project will rely upon the findings of the video inspection to identify the best locations to replace or rehabilitate the sewer each year. It is also possible that inspection will identify the need to increase the rate of replacement of the sewer in some locations. The project would only replace/rehabilitate approximately 11 miles of the City's 280 miles of sewer line over a 20 year period.

Service Level

A proper replacement schedule will help to keep the sanitary sewer system safer.

Issues

This rate of replacement will likely be determined as low. Future analysis could indicate the need for much larger investment. Grant funding options should be investigated if they are available. Low cost loans or bond issues may be additional options if a much greater need is identified by the video inspection.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	70,000	102,000	208,000	318,362	432,973	552,040	563,081	574,343	585,830	597,546	615,473	4,549,648	4,619,648
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	102,000	208,000	318,362	432,973	552,040	563,081	574,343	585,830	597,546	615,473	4,549,648	
Total	0	70,000	102,000	208,000	318,362	432,973	552,040	563,081	574,343	585,830	597,546	615,473	4,549,648	4,619,648
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825520 Pond Sediment Removal

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2005-06	Phase:	Construction	Project Manager:	Hira Raina
Planned Completion Year:	2010-11	% Complete:	25	Project Coordinator:	Dan Hammons
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3C	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The oxidation ponds provide secondary treatment using natural action of sun and wind to facilitate the growth of algae, which takes up dissolved waste from the wastewater. Algae is removed later in the Water Pollution Control Plant process and returned to the ponds. No solids have been removed from the ponds since inception of secondary treatment in the late 1960's. The current accumulation of solids is estimated at 35% to 45% of the pond volume. A pilot study was recently completed to assess a removal methodology. Costs for pond sediment removal were originally estimated at $25 to $30M, but have now been revised, based on the pilot study, to approximately $14M. The unit cost to remove accumulated pond solids is estimated, from the pilot study, to be $540 per dry ton, with a goal for removal of 26,000 tons. This unit cost is based on the work being accomplished under one contract.

The project evaluates an in-house project (equipment purchase, internal operation) versus contracting out, preparation of the bid package in FY 05-06, and solids removal each year thereafter until the recommended reduction is achieved. Work to remove solids should be initiated as soon as possible to mitigate risks. Conditions could also change in the future and the value of the pilot study could be lost. One risk is odor release. Wind action on solids near the surface can release hydrogen sulfide gas (rotten egg smell). Such an event occurred in the early 1990's. Another risk is that of exceeding ammonia effluent limits. To meet the ammonia limits, flow through the tertiary plant is reduced during the summer when ammonia levels are at their highest, and the excess flow is held in the ponds. Exceedances of limits result in mandatory fines. Replacement of the ponds with conventional secondary treatment of aeration basins and clarifiers is estimated to cost approximately $100 million for capital and $1 million annually for power, and thus would be a more costly alternative.

Service Level

None.

Issues

None.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	300,000	651,000	664,020	677,300	690,846	704,663	718,757	733,132	747,794	762,750	778,005	7,128,267	7,428,267
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	651,000	664,020	677,300	690,846	704,663	718,757	733,132	747,794	762,750	778,005	7,128,267	
Total	0	300,000	651,000	664,020	677,300	690,846	704,663	718,757	733,132	747,794	762,750	778,005	7,128,267	7,428,267
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 825750 Sewer Lift Stations Rebuild

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2004-05	Phase:	Ongoing	Project Manager:	Hira Raina
Planned Completion Year:	Ongoing	% Complete:	n/a	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	none

Element:	3 Environmental Management	Goal:	3.3F	Fund:	455 Utilities
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund:	300 Wastewater Management

Project Description and Statement of Need

The City currently operates five sewer lift stations which use electric motors. Four of the five lift stations, which ensure proper flow of sewage through the sewer system, are in great need of repair (Kifer lift station was recently restored). This project overhauls pumps and rehabilitates wet wells, traffic covers, and electrical panels. Rebuilding of the lift stations will take place over a period of years in order of necessity: Arques, Sunken Garden, Baylands, and Lawrence. Design for each of the stations will be completed the year prior to construction. The next renovation should not be necessary for at least 10 to 20 years, with an appropriate level of maintenance.

Service Level

Repair and replacement of equipment will reduce the need for emergency repairs and improve the reliability of the stations. The project will thus preserve the City's investment in its infrastructure and prevent problems that would be inconvenient, costly, and unsanitary.

Issues

Long-term costs will be reviewed as part of Phase II of the Long Range Infrastructure Plan.

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	0	0	0	0	0	49,684	337,849	327,375	216,757	101,583	0	1,033,248	1,033,248
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
Fund Reserves		0	0	0	0	0	49,684	337,849	327,375	216,757	101,583	0	1,033,248	
Total	0	0	0	0	0	0	49,684	337,849	327,375	216,757	101,583	0	1,033,248	1,033,248
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Information Sheet

Project: 826080 Borregas Avenue Sewer Rehabilitation

Category:	Infrastructure	Type:	Sanitary Sewer	Department:	Public Works
Origination Year:	2005-06	Phase:	Planning	Project Manager:	Hira Raina
Planned Completion Year:	2006-07	% Complete:	n/a	Project Coordinator:	Jim Craig
Origin:	Staff			Interdependencies:	Community Development

Element:	3 Environmental Management	Goal:	3.3B1	Fund: 610	Infrastructure Renov & Replace
Sub-Element:	3.3 Sanitary Sewer System	Neighborhood:	City Wide	Sub-Fund: 100	General Fund Assets

Project Description and Statement of Need

This project will provide funding to reline or repair 4,445 LF of 27"-diameter sanitary sewer trunk line, and to repair or rebuild 12 manholes. Cured-in-place lining, a process that relines the pipe with a resin-type material, is more cost-effective (1/3 to 1/2 the cost) than complete replacement of the pipeline, which has been in service for approximately 50 years. Spot repairs have been made on an emergency basis and the line needs complete rehabilitation, or it will come to the point where replacement will be required. This will improve sewer flow and stop degradation of the pipe in this segment, which is one of the three primary trunk lines to the Water Pollution Control Plant. The project is eligible for CDBG funding, which will be supplemented by the Sewer Reserve Fund to cover engineering design, construction, and project administration costs.

Service Level

The project will preserve the City's investment in its infrastructure, and prevent problems that would be inconvenient, costly, and unsanitary.

Issues

none

Project Financial Summary

Financial Data	Prior Actual	Budget 2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	10 Year Budget	Grand Total
Project Costs	0	1,050,000	0	0	0	0	0	0	0	0	0	0	0	1,050,000
Revenues														
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transfers-In														
CDBG Fund		526,990	0	0	0	0	0	0	0	0	0	0	0	
Utilities Fund - Sewer		523,010	0	0	0	0	0	0	0	0	0	0	0	
Total	0	1,050,000	0	0	0	0	0	0	0	0	0	0	0	1,050,000
Operating Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0